

COMMISSION 27 OF THE I. A. U.
INFORMATION BULLETIN ON VARIABLE STARS

Number 2459

Konkoly Observatory
Budapest
10 January 1984
HU ISSN 0374-0676

THE LONG TIME BEHAVIOUR OF THE POLAR AM Her IN 1983

The star was inspected on 92 blue-sensitive plates (ORWO-ZU 21 + GG 13 + BG 12) from 36 nights taken with the 50/70/172 cm Schmidt camera of Sonneberg Observatory covering the time interval between 1983 March 9 and 1983 November 6. The exposure time of these plates varies between 9 and 30 minutes, but most of the plates are exposed 20 minutes. In 21 nights more than one plate per night were obtained.

The used sequence of comparison stars in B is given by Hudec and Meinunger (1977). It is remarkable that concerning its brightness in 1983 AM Her has stepped over the limits of this sequence given by the comparison stars q ($m_B = 12^m.79$) and e ($m_B = 15^m.44$).

The long time light curve in B is shown in Figure 1. There, the estimations on individual plates are plotted by dots. The mean magnitudes from nights with more than one plate are marked by circles.

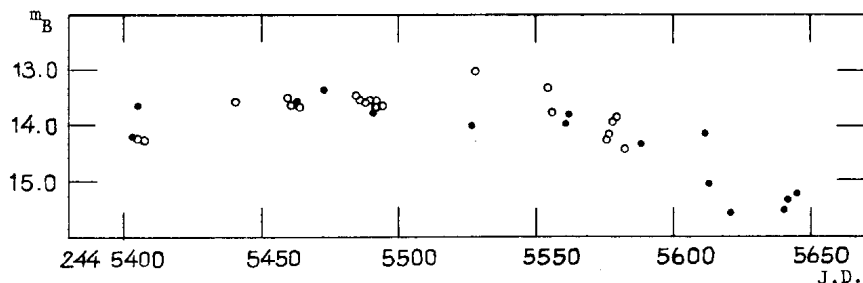


Figure 1

As in the series of the year 1982 (Götz, 1982) two different states of the behaviour of AM Her can be seen in Figure 1. Most of the time in 1983 the star spent in the active state which is characterized by increased brightness caused by X-ray heating. In this phase where the influences of the occultation light changes could be confirmed again a flare was observed on

July 12, 1983. There, the brightness of AM Her increased from $m_B = 13.74$ (J.D. hel. 2445528.407) to $m_B = 12.33$, $\Delta m_B = -1.41$, within $\Delta t = 0.024$ d. On a plate in V (ORWO-RP1 + GG 14), which was exposed 29 minutes later than the maximum plate the brightness of the star is $V = 13.10$. From both plates a colour index of $B - V = -0.77$ results. The inactive state of the star with a brightness lower than $m_B = 15.0$ was observed at the end of the given series. The change from the high to the low state started within 1 d between 1983 October 4 ($m_B = 14.16$) and October 5 ($m_B = 15.05$).

More details about the behaviour of AM Her, especially concerning the occultation light changes will be published in Mitt.Veränd. Sterne (Sonneberg).

W. GÖTZ

Akademie der Wissenschaften
der DDR, Zentralinstitut für
Astrophysik, Sternwarte
Sonneberg

References:

- Hudec, R., Meinunger, L., 1977, MVS 7, 194
Götz, W., 1982, IBVS No. 2226